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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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SCHLUMBERGER OILFIELD SERVICES
200 GILLINGHAM LANE
MD 200-9
SUGAR LAND, TX 77478

EXAMINER
GAY, JENNIFER HAWKINS

ART UNIT	PAPER NUMBER
3672	

DATE MAILED: 03/17/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/994,199	KURKJIAN ET AL.	
	Examiner	Art Unit	
	Jennifer H Gay	3672	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *29 January 2004*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-38* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-38* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date *2/2/04*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 1-4, 7, 10, 11, 15, 16, 18, 20-23, 35, 36, and 38 are rejected under 35 U.S.C. 102(b) as being anticipated by Abercrombie (US 4,605,06).

Regarding claim 1: Abercrombie disclose a method for identifying the presence of a corrosive substance in wellbore fluid. The method involves the following steps (see col. 2, ll 20-40):

- Lowering a downhole tool that includes at least one sample of a material that is operatively connected to the wellbore via production tubing. The coupon is optically reactive to the corrosive substance. In column 1, lines 16-29, Abercrombie teaches that hydrogen sulfide is a common corrosive agent in wellbore and that fluid flowing through a tubing string can be wellbore fluid, i.e. fluid from the reservoir.
- Determining whether an optical reaction has occurred to the at least one sample.

Regarding claims 2 and 3: The at least one sample is inspected for changes due to corrosion after it is removed from the wellbore. *It should be noted that the inspection of the at least one sample for changes due to corrosion would be indicate if hydrogen sulfide was in the well and the degree of the corrosion would indicate the amount of hydrogen sulfide.*

Regarding claim 4: As noted in column 2, lines 20-40, the tool is lowered into and retrieved from the wellbore.

Regarding claim 7: As noted in column 2, lines 22-25, the at least one sample is made of stainless steel.

Regarding claim 10: The method of Abercrombie further includes the following steps:

- Lowering the tool into the wellbore where the tool includes a housing (11), the at least one sample (59), and at least one passage (27) for conducting formation fluid to the at least one sample.
- Delivering the wellbore fluid to the at least one sample through the passage.
- Retrieving the tool from the wellbore.
- Inspecting the at least one sample for an optical reaction. In column 1, lines 16-29, Abercrombie teaches that hydrogen sulfide is a common corrosive agent in wellbore.

Regarding claim 11: As noted in column 2, lines 22-25, the at least one sample is made of stainless steel.

Regarding claim 15: The method of Abercrombie further includes the following steps:

- Lowering the tool into the wellbore where the tool includes a housing (11), the at least one sample (59), and at least one passage (27) for conducting formation fluid to the at least one sample.
- Delivering the wellbore fluid to the at least one sample through the passage.
- Retrieving the tool from the wellbore.
- Inspecting the at least one sample for an optical reaction. In column 1, lines 16-29, Abercrombie teaches that hydrogen sulfide is a common corrosive agent in wellbore.

Regarding claim 16: As noted in column 2, lines 22-25, the at least one sample is made of stainless steel.

Regarding claim 18: While not specifically disclosed that the at least one sample changes color in response to the presence of hydrogen sulfide, the examiner notes that

Abercrombie does inspect the at least one sample for changes due to corrosion and it is the examiner's opinion that color change is the most common visual way of determining if a material has corroded. Therefore, the examiner believes that Abercrombie teaches this feature.

Regarding claim 20: The apparatus used in the method of Abercrombie includes the following features:

- A housing (11).
- At least one sample (59) that is operatively connected to the housing. The sample is reactive to a corrosive material. In column 1, lines 16-29, Abercrombie teaches that hydrogen sulfide is a common corrosive agent in wellbore.
- At least one passage (27) for conducting formation fluid to the at least one sample.

Regarding claims 21 and 22: As noted in column 2, lines 22-25, the at least one sample is made of stainless steel.

Regarding claim 23: While not specifically disclosed that the at least one sample changes color in response to the presence of hydrogen sulfide, the examiner notes that Abercrombie does inspect the at least one sample for changes due to corrosion and it is the examiner's opinion that color change is the most common visual way of determining if a material has corroded. Therefore, the examiner believes that Abercrombie teaches this feature.

Regarding claim 35: The apparatus used in the method of Abercrombie includes the following features:

- A housing (29).
- At least one sample (59) that is reactive to a corrosive material. In column 1, lines 21-24, Abercrombie teaches that hydrogen sulfide is a common corrosive agent in wellbore.
- At least one passage (31) for conducting formation fluid to the at least one sample.

Regarding claim 36: As noted in column 2, lines 22-25, the at least one sample is made of stainless steel.

Regarding claim 38: While not specifically disclosed that the at least one sample changes color in response to the presence of hydrogen sulfide, the examiner notes that Abercrombie does inspect the at least one sample for changes due to corrosion and it is the examiner's opinion that color change is the most common visual way of determining if a material has corroded. Therefore, the examiner believes that Abercrombie teaches this feature.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

4. Claims 5, 6, 8, 9, 13, 19, 24, 25, 30, and 31 are rejected under 35 U.S.C. 103(a) as being unpatentable over Abercrombie (US 4,605,065) in view of Waterman et al. (US 5,627,749).

Regarding claims 5, 6, 13, and 24: Abercrombie discloses all of the limitations of the above claims except for a temperature sensor to take temperature readings of the wellbore fluid. Waterman et al. teaches a method and tool for monitoring corrosion in a wellbore where the tool includes a temperature sensor. It would have been considered obvious to one of ordinary skill in the art, at the time the invention was made, to have included a temperature sensor as taught by Waterman et al. in the system of Abercrombie in order to have been able to correlate the amount of corrosion to the temperature of the well since corrosion is dependent on the temperature of the fluid (see col. 1, ll 23-27).

Regarding claims 8, 9, 30, and 31: Abercrombie discloses all of the limitations of the above claims except for a sensor that is capable of detecting the visual change in the at least one sample where the sensor can transmit a single that indicates the change.

Waterman et al. teaches a sensor that monitors the corrosion of a coupon and a CPU stores and transmits the data from the sensor. It would have been considered obvious to one of ordinary skill in the art, at the time the invention was made, to have included the sensor and CPU of Waterman et al. in the system of Abercrombie in order to have provided a means for monitoring the change in hydrogen sulfide amounts over a given time without having to remove the tool (see col. 1, ll 30-50).

Regarding claim 19: Abercrombie discloses a method for monitoring fluid in a wellbore that includes the following steps:

- Lowering a downhole tool into a wellbore where the tool includes a housing (11), at least one sample (59), and at least one passage (27) for conducting formation fluid to the at least one sample. The at least one sample is optically reactive to hydrogen sulfide.
- Delivering wellbore fluid to the at least one sample through the passage.
- Retrieving the tool from the wellbore.
- Inspecting the at least one sample for an optical reaction. In column 1, lines 21-24, Abercrombie teaches that hydrogen sulfide is a common corrosive agent in wellbore.
- The at least one sample is inspected for changes due to corrosion after it is removed from the wellbore. *It should be noted that the inspection of the at least one sample for changes due to corrosion would be indicate if hydrogen sulfide was in the well and the degree of the corrosion would indicate the amount of hydrogen sulfide.*

Abercrombie discloses all of the limitations of the above claims except for a temperature sensor to take temperature readings of the wellbore fluid.

Waterman et al. teaches a method and tool for monitoring corrosion in a wellbore. It would have been considered obvious to one of ordinary skill in the art, at the time the invention was made, to have included a temperature sensor as taught by Waterman et al. in the system of Abercrombie in order to have been able to correlate the amount of

corrosion to the temperature of the well since corrosion is dependent on the temperature of the fluid (see col. 1, ll 23-27).

Regarding claim 25: Abercrombie and Waterman et al. discloses all of the limitations of the above claims except for a pressure sensor. However, in column 1, lines 23-27, Waterman et al. teaches that the rate of corrosion is dependent on the pressure with the wellbore. Therefore, it would have been considered obvious to one of ordinary skill in the art, at the time the invention was made, to have include a pressure sensor in the system of Abercrombie in view of Waterman et al. in order to have been able to correlate the amount of corrosion to the pressure of the well since corrosion is dependent on the pressure of the well (see col. 1, ll 23-27).

5. Claim 14 is rejected under 35 U.S.C. 103(a) as being unpatentable over Abercrombie (US 4,605,065) in view of GB 2344365.

Abercrombie discloses all of the limitations of the above claims except for collecting a sample of the wellbore fluid in the tool. GB 2344365 teaches a method and apparatus for measuring the amount of volatile components in wellbore fluid where a sample of the wellbore fluid is collected and brought to the surface (see page 8, line 25-page 9, line 5). It would have been considered obvious to one of ordinary skill in the art, at the time the invention was made, to have used the system of Abercrombie to collect a sample of the wellbore fluid as taught by GB 2344365 in order to have been able to perform a complete analysis of the wellbore fluid.

6. Claims 12 and 26-29 are rejected under 35 U.S.C. 103(a) as being unpatentable over Abercrombie (US 4,605,065) in view of Williams (US 4,688,638).

Regarding claims 12, 26, 27, and 29: Abercrombie discloses all of the limitations of the above claims except for the at least one sample including several coupons where the coupons have different reactive responses. As noted in column 1, line 67-column 2, line 12, Williams teach a downhole corrosion coupon holder. The holder can hold two or more coupons and the coupons may be of different material. It would have been considered obvious to one of ordinary skill in the art, at the time the invention was made,

to have include several coupons in the system of Abercrombie where the coupons have different reactive responses as taught by Williams in order to have been able to determine how different alloys were affected by the same environment.

Regarding claim 28: Abercrombie discloses all of the limitations of the above claims except for the tool housing being resistant to hydrogen sulfide. While it is not specifically taught that the coupon holder of Williams is resistant to corrosion due to hydrogen sulfide, the examiner considers the statement that, once the tool is brought to the surface, the coupons are removed from the holder and then tested (see col. 4, ll 35-40) an indication that the holder itself has not corroded due to the fact that it is the coupons that used to determine the rate of corrosion. Therefore, it would have been considered obvious to one of ordinary skill in the art, at the time the invention was made, to have formed the coupon holder of Abercrombie so that it was corrosion resistant as taught by Williams in order to have been able to reuse the coupon holder.

7. Claims 17 and 37 are rejected under 35 U.S.C. 103(a) as being unpatentable over Abercrombie (US 4,605,065) in view of *Monel*.

Abercrombie et al. discloses all of the limitations of the above claims except for the coupons being made of MONEL alloy 400. On page 4, paragraph 10, *Monel* teaches that it is known that MONEL is corroded by hydrogen sulfide but resists embrittling in oil-well brines that contain hydrogen sulfide. It would have been considered obvious to one of ordinary skill in the art, at the time the invention was made, to have formed the coupon of Abercrombie from MONEL as taught by *Monel* in order to have used a metal that corrodes in hydrogen sulfide but would not become brittle in a wellbore.

8. Claims 32-34 are rejected under 35 U.S.C. 103(a) as being unpatentable over Abercrombie (US 4,605,065) in view of Williams (US 4,688,638), Waterman et al. (US 5,627,749), and GB 2344365.

Regarding claim 32: Abercrombie discloses an apparatus for monitoring corrosion in a well that includes the following features:

- A housing (29).

- At least one sample (59) that is reactive to a corrosive material. In column 1, lines 21-24, Abercrombie teaches that hydrogen sulfide is a common corrosive agent in wellbore.
- At least one passage (31) for conducting formation fluid to the at least one sample.
- While not specifically disclosed that the at least one sample changes color in response to the presence of hydrogen sulfide, the examiner notes that Abercrombie does inspect the at least one sample for changes due to corrosion and it is the examiner's opinion that color change is the most common visual way of determining if a material has corroded. Therefore, the examiner believes that Abercrombie teaches this feature.

Abercrombie discloses all of the limitations of the above claims except for using a plurality of coupons, except for a temperature sensor to take temperature readings of the wellbore fluid, and except for a probe to direct fluid into the tool.

As noted in column 1, line 67-column 2, line 12, Williams teach a downhole corrosion coupon holder. The holder can hold two or more coupons that are responsive to hydrogen sulfide and the coupons may be of different material. It would have been considered obvious to one of ordinary skill in the art, at the time the invention was made, to have included several coupons in the system of Abercrombie where the coupons are reactive to hydrogen sulfide as taught by Williams in order to have been able to determine how different alloys were affected by the same environment.

Waterman et al. teaches a method and tool for monitoring corrosion in a wellbore where the tool includes a temperature sensor. It would have been considered obvious to one of ordinary skill in the art, at the time the invention was made, to have included a temperature sensor as taught by Waterman et al. in the system of Abercrombie in view of Williams in order to have been able to correlate the amount of corrosion to the temperature of the well since corrosion is dependent on the temperature of the fluid (see col. 1, ll 23-27).

GB 2344365 teaches a method and apparatus for measuring the amount of volatile components in wellbore fluid where a sample of the wellbore fluid is collected and brought to the surface (see page 8, line 25-page 9, line 5). The apparatus includes a probe (34) to direct formation fluid into the tool. It would have been considered obvious to one of ordinary skill in the art, at the time the invention was made, to have modified Abercrombie in view of Williams and Waterman et al. to include the probe of GB 2344365 in order to have provided a means for ensuring that a pure formation fluid sample was tested for corrosive materials.

Regarding claim 33 and 34: Abercrombie and Williams discloses all of the limitations of the above claims except for a sensor that is capable of detecting the visual change in the at least one sample where the sensor can transmit a single that indicates the change. Waterman et al. teaches a sensor that monitors the corrosion of a coupon and a CPU stores and transmits the data from the sensor. It would have been considered obvious to one of ordinary skill in the art, at the time the invention was made, to have included the sensor and CPU of Waterman et al. in the system of Abercrombie in view of Williams in order to have provided a means for monitoring the change in hydrogen sulfide amounts over a given time without having to remove the tool (see col. 1, ll 30-50).

Response to Arguments

9. Applicant's arguments filed 15 September 2003 have been fully considered but they are not persuasive.

In response to applicant's argument that Abercrombie does not teach a downhole tool with a sample of material or a coupon the examiner notes that the coupon carrier taught by Abercrombie is considered a downhole tool and it is operatively connects the coupon to the wellbore via the production tubing.

In response to applicant's argument that Williams does not teach a downhole tool and a sample of material or a coupon, the test for obviousness is not whether the features of a secondary reference may be bodily incorporated into the structure of the primary

reference; nor is it that the claimed invention must be expressly suggested in any one or all of the references. Rather, the test is what the combined teachings of the references would have suggested to those of ordinary skill in the art. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981). The examiner notes that Williams was used merely to teach the use of multiple coupons in a wellbore where the coupons have different reactive responses.

In response to applicant's argument that Waterman teaches a stand-alone monitoring probe not a downhole tool, the test for obviousness is not whether the features of a secondary reference may be bodily incorporated into the structure of the primary reference; nor is it that the claimed invention must be expressly suggested in any one or all of the references. Rather, the test is what the combined teachings of the references would have suggested to those of ordinary skill in the art. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981). The examiner notes that Waterman was used merely to teach a temperature probe used with corrosion monitoring and why a temperature probe is important to the process of corrosion monitoring.

In response to applicant's argument that Waterman teaches away from combination with Abercrombie, i.e. positioning a coupon within the flow of fluid for an interval of time, the examiner notes that the sections of Waterman and Abercrombie cited by applicant both teach leaving the coupon in the wellbore for a selected amount of time.

In response to applicant's argument that *Monel* does not teach any type of downhole tool, the test for obviousness is not whether the features of a secondary reference may be bodily incorporated into the structure of the primary reference; nor is it that the claimed invention must be expressly suggested in any one or all of the references. Rather, the test is what the combined teachings of the references would have suggested to those of ordinary skill in the art. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981). The examiner notes that *Monel* was used merely to teach that it was a well known that MONEL is corroded by hydrogen sulfide but resists embrittling in oil-well brines that contain hydrogen sulfide.

In response to applicant's argument that there is no suggestion to combine Abercrombie and GB 2344365, the examiner recognizes that obviousness can only be

established by combining or modifying the teachings of the prior art to produce the claimed invention where there is some teaching, suggestion, or motivation to do so found either in the references themselves or in the knowledge generally available to one of ordinary skill in the art. See *In re Fine*, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988) and *In re Jones*, 958 F.2d 347, 21 USPQ2d 1941 (Fed. Cir. 1992). In this case, the motivation is that one of ordinary skill would want a complete analysis of the reservoir fluid not just a measure of the visual reaction of the coupon and the wellbore fluid.

Conclusion

10. THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

11. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jennifer H Gay whose telephone number is (703) 308-2881. The examiner can normally be reached on Monday-Thursday, 6:30-4:00 and Friday, 6:30-1:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Bagnell can be reached on (703) 308-2151. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

David Bagnell
Supervisory Patent Examiner
Art Unit 3672

JHG
March 8, 2004